

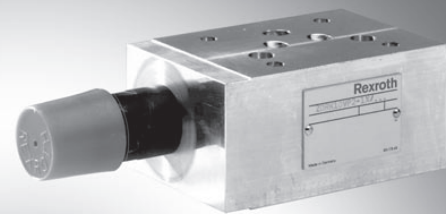
# Pressure relief valve, pilot operated

**RE 25764/04.07**  
Replaces: 12.02

1/8

## Types ZDBK and Z2DBK

Size 10  
Component series 1X  
Maximum operating pressure 210 bar  
Maximum flow 80 l/min



H4080

## Table of contents

Contents	Page
Features	1
Ordering code	2
Standard types	2
Symbols	3
Function, section	3
Technical data	4
Characteristic curves	4
Unit dimensions	5 to 8

## Features

- Sandwich plate valve
- Porting pattern to ISO 4401-05-04-0-05
- 3 pressure ratings, optional
- 5 directions of action, optional
- With 1 or 2 pressure relief valve cartridges
- Adjustment element:  
Sleeve with hexagon and protective cap

Information on available spare parts:  
[www.boschrexroth.com/spc](http://www.boschrexroth.com/spc)

## Ordering code

Z	DBK	10	2	1X	V	*
Sandwich plate = Z						Further details in clear text
1 pressure relief valve cartridge = No code (only with variant "VA", "VB" and "VP")					V =	<b>Seal material</b> FKM seals (other seals on request) <b>⚠ Attention!</b> Observe compatibility of seals with hydraulic fluid used!
2 pressure relief valve cartridges = 2 (only with variant "VC" and "VD")						
Pressure relief valve = DBK						
Size 10 = 10						
Relief function from – to:						
A – T = VA						
P – T = VP						
B – T = VB						
A – T and B – T = VC						
A – B and B – A = VD						
<b>Adjustment element for pressure adjustment</b>						
Sleeve with hexagon and protective cap = 2						
				1X =		Pressure rating 50 = Pressure setting up to 50 bar 100 = Pressure setting up to 100 bar 210 = Pressure setting up to 210 bar Component series 10 to 19 (10 to 19: unchanged installation and connection dimensions)

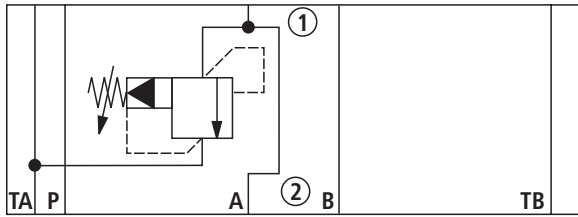
## Standard types

Type ZDBK	Material number
ZDBK 10 VA2-1X/50V	R900564523
ZDBK 10 VA2-1X/100V	R900564524
ZDBK 10 VA2-1X/210V	R900564525
ZDBK 10 VB2-1X/50V	R900564526
ZDBK 10 VB2-1X/100V	R900564527
ZDBK 10 VB2-1X/210V	R900564528
ZDBK 10 VP2-1X/50V	R900564529
ZDBK 10 VP2-1X/100V	R900501052
ZDBK 10 VP2-1X/210V	R900564530

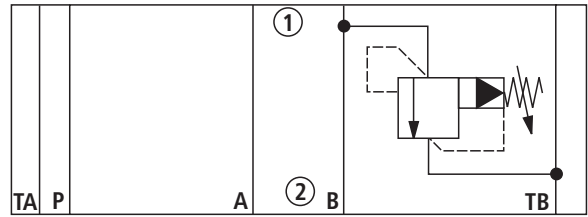
Type Z2DBK	Material number
Z2DBK 10 VC2-1X/50V	R900564531
Z2DBK 10 VC2-1X/100V	R900564532
Z2DBK 10 VC2-1X/210V	R900564533
Z2DBK 10 VD2-1X/50V	R900564534
Z2DBK 10 VD2-1X/100V	R900564535
Z2DBK 10 VD2-1X/210V	R900564536

**Symbols** (1) = component side, (2) = plate side

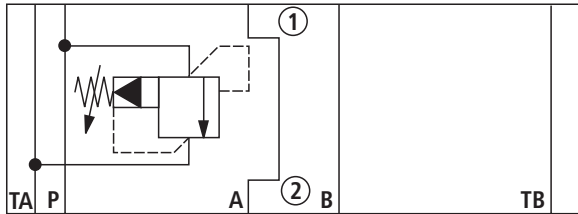
Type ZDBK 10 VA...



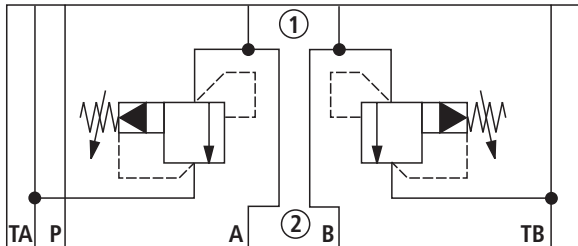
Type ZDBK 10 VB...



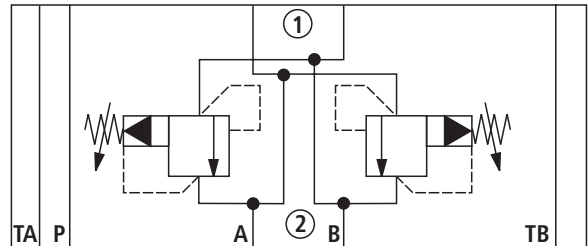
Type ZDBK 10 VP...



Type Z2DBK 10 VC...



Type Z2DBK 10 VD...



**Function, section**

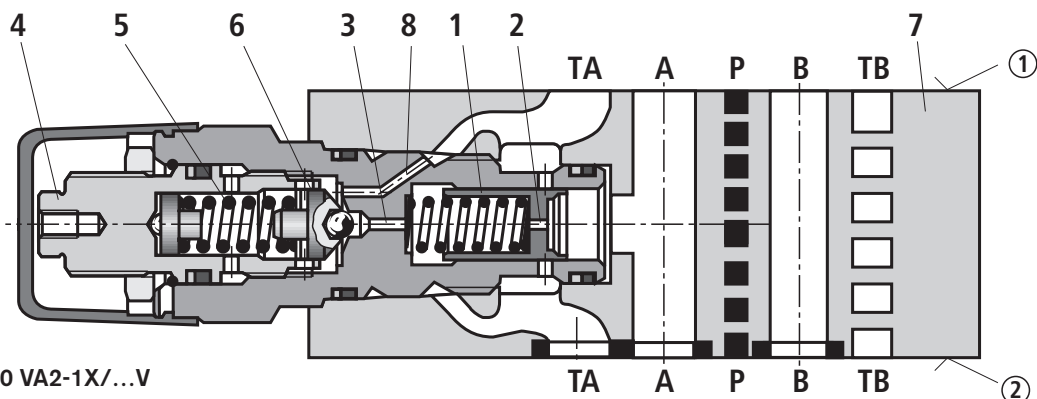
Pressure relief valves of types ZDBK and Z2DBK are pilot operated pressure relief valves of sandwich plate design. They are used to limit a system pressure.

The valves basically consist of housing (7) and one or two pressure relief valve cartridges. The system pressure can be adjusted by means of adjustment element (4).

In the initial position the valves are closed. The pressure in channel A acts on spool (1). At the same time, the pressure is applied via orifice (2) to the spring-loaded side of spool (1) and orifice (3) at pilot poppet (6). When the pressure in chan-

nel A rises above the value set on spring (5), pilot poppet (6) opens. Hydraulic fluid then flows from the spring-loaded side of spool (1), orifice (3) and bore (8) to channel T. The pressure drop thus created shifts spool (1) and consequently opens the connection from A to T while the pressure set on spring (5) is maintained.

The pilot oil is externally drained from the two spring chambers via channel T.



Type ZDBK 10 VA2-1X/...V

**Technical data** (for applications outside these parameters, please consult us!)**General**

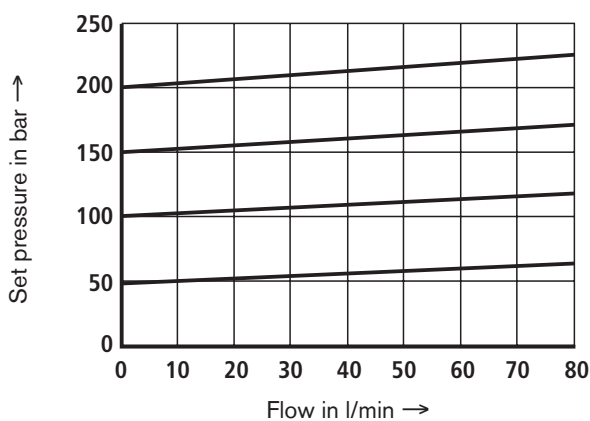
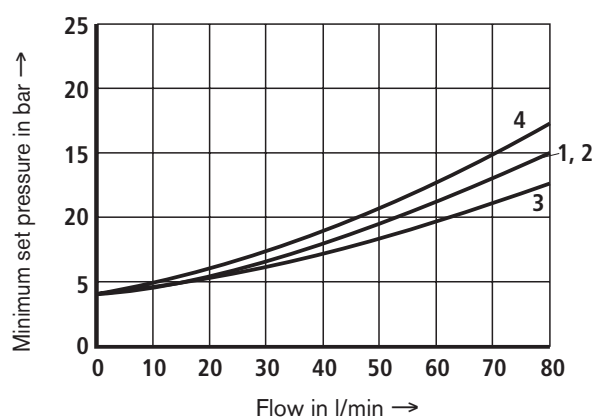
Weight	Type ZDBK	kg	approx. 1.3
	Type Z2DBK 10 VC	kg	approx. 1.5
	Type Z2DBK 10 VD	kg	approx. 2.7
Installation position			Optional
Ambient temperature range			°C -20 to +80

**Hydraulic**

Maximum operating pressure	bar	210
Maximum pressure setting	bar	50; 100; 210
Maximum counterpressure (port T)	bar	< 100
Maximum flow	l/min	80
Hydraulic fluid	Mineral oil (HL, HLP) to DIN 51524; fast bio-degradable hydraulic fluids to VDMA 24568 (see also RE 90221); HETG (rape seed oil); HEPG (polyglycols); HEES (synthetic esters); other hydraulic fluids on request	
Hydraulic fluid temperature range	°C	-20 to +80
Viscosity range	mm <sup>2</sup> /s	10 to 800
Permissible max. degree of contamination of the hydraulic fluid - cleanliness class to ISO 4406 (c)	Class 20/18/15 <sup>1)</sup>	

<sup>1)</sup> The cleanliness classes specified for components must be adhered to in hydraulic systems. Effective filtration prevents malfunction and, at the same time, prolongs the service life of components.

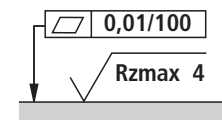
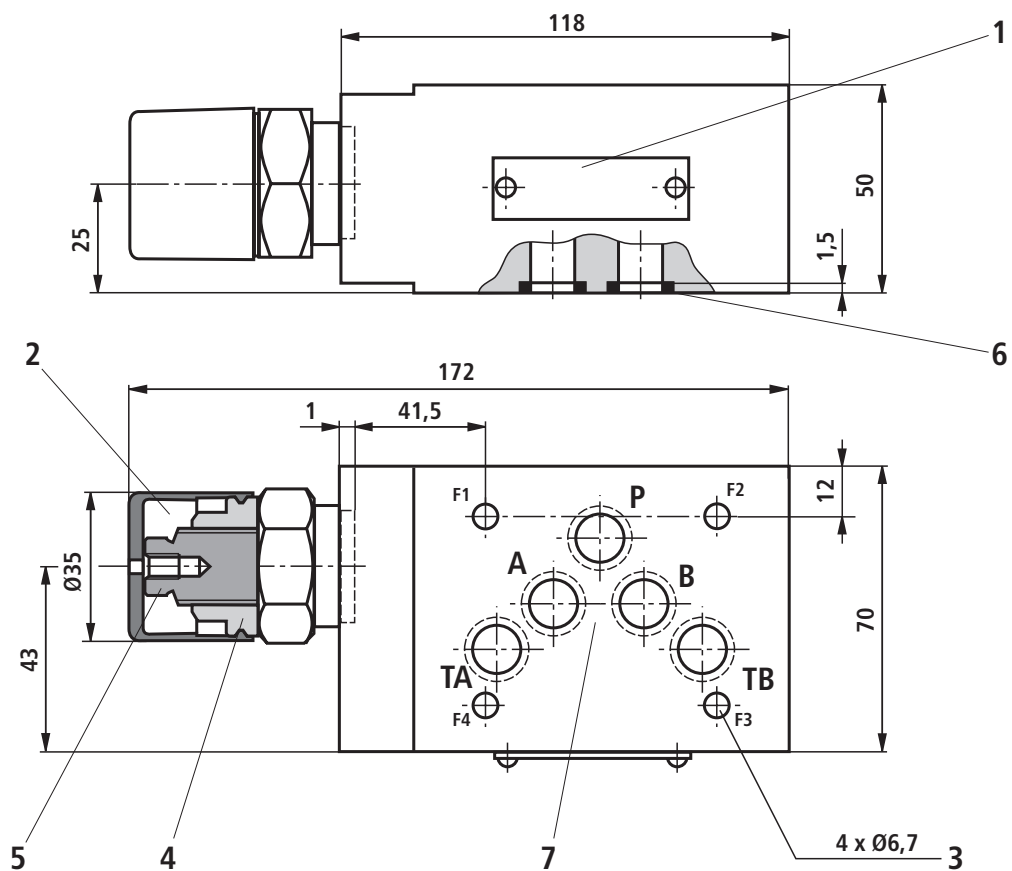
For the selection of filters, see data sheets RE 50070, RE 50076, RE 50081, RE 50086, RE 50087 and RE 50088.

**Characteristic curves** (measured with HLP46 and  $\vartheta_{oil} = 40 \text{ °C} \pm 5 \text{ °C}$ ) $p_E - q_V$  characteristic curves $p_{E \min} - q_V$  characteristic curves

- 1 VP
- 2 VA, VB, VC
- 3 VD (A to B)
- 4 VD (B to A)

The characteristic curves are valid for initial pressure = zero over the entire flow range!

## Unit dimensions: Type ZDBK 10 VA and ZDBK 10 VP (dimensions in mm)



Required surface quality of the valve mounting face

- 1 Nameplate
- 2 Adjustment element: Sleeve with hexagon and protective cap
- 3 Valve mounting bores
- 4 Locknut 24 A/F
- 5 Hexagon 10 A/F
- 6 Identical seal rings for ports A, B, P, TA, TB (plate side)
- 7 Porting pattern to ISO 4401-05-04-0-05

### Valve fixing screws (separate order)

#### – 4 hexagon socket head cap screws

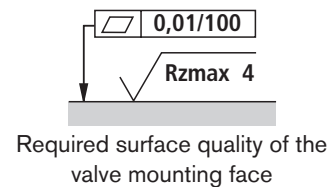
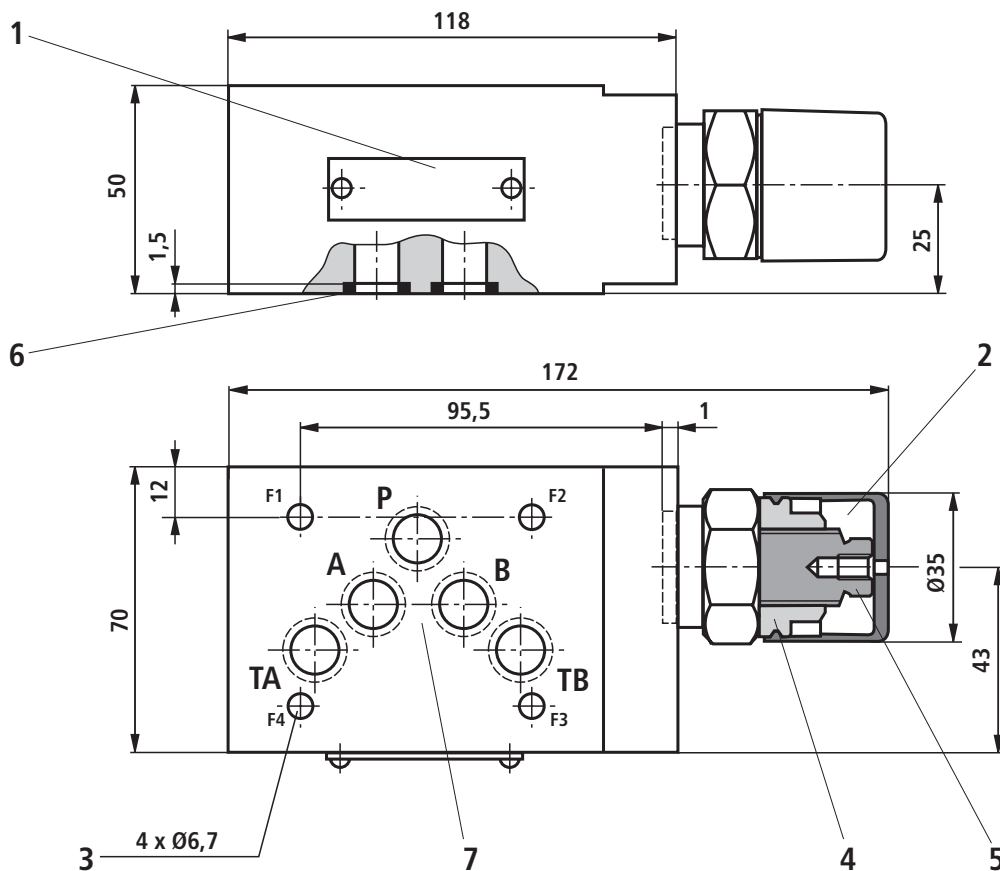
ISO 4762 - M6 - 10.9-fIZn-240h-L

Friction coefficient  $\mu_{\text{total}} = 0.09$  to  $0.14$ ,  
tightening torque  $M_T = 12.5 \text{ Nm} \pm 10\%$ ,  
or

#### – 4 hexagon socket head cap screws ISO 4762 - M6 - 10.9

Friction coefficient  $\mu_{\text{total}} = 0.12$  to  $0.17$ ,  
tightening torque  $M_T = 15.5 \text{ Nm} \pm 10\%$

## Unit dimensions: Type ZDBK 10 VB (dimensions in mm)



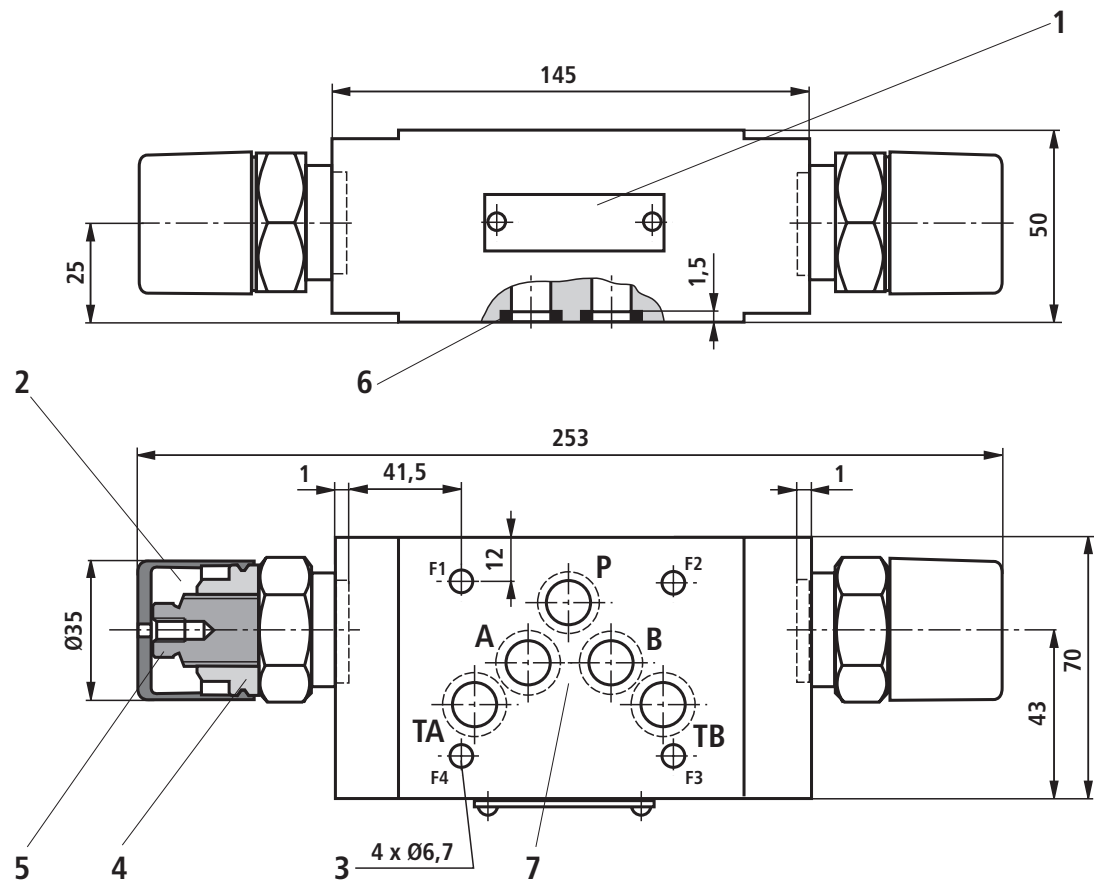
- 1 Nameplate
- 2 Adjustment element: Sleeve with hexagon and protective cap
- 3 Valve mounting bores
- 4 Locknut 24 A/F
- 5 Hexagon 10 A/F
- 6 Identical seal rings for ports A, B, P, TA, TB (plate side)
- 7 Porting pattern to ISO 4401-05-04-0-05;

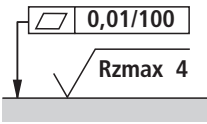
### Valve fixing screws (separate order)

– 4 hexagon socket head cap screws  
**ISO 4762 - M6 - 10.9-fIZn-240h-L**  
 Friction coefficient  $\mu_{\text{total}} = 0.09$  to  $0.14$ ,  
 tightening torque  $M_T = 12.5 \text{ Nm} \pm 10\%$ ,  
 or

– 4 hexagon socket head cap screws **ISO 4762 - M6 - 10.9**  
 Friction coefficient  $\mu_{\text{ges}} = 0.12$  to  $0.17$ ,  
 tightening torque  $M_T = 15.5 \text{ Nm} \pm 10\%$

## Unit dimensions: Type Z2DBK 10 VC (dimensions in mm)



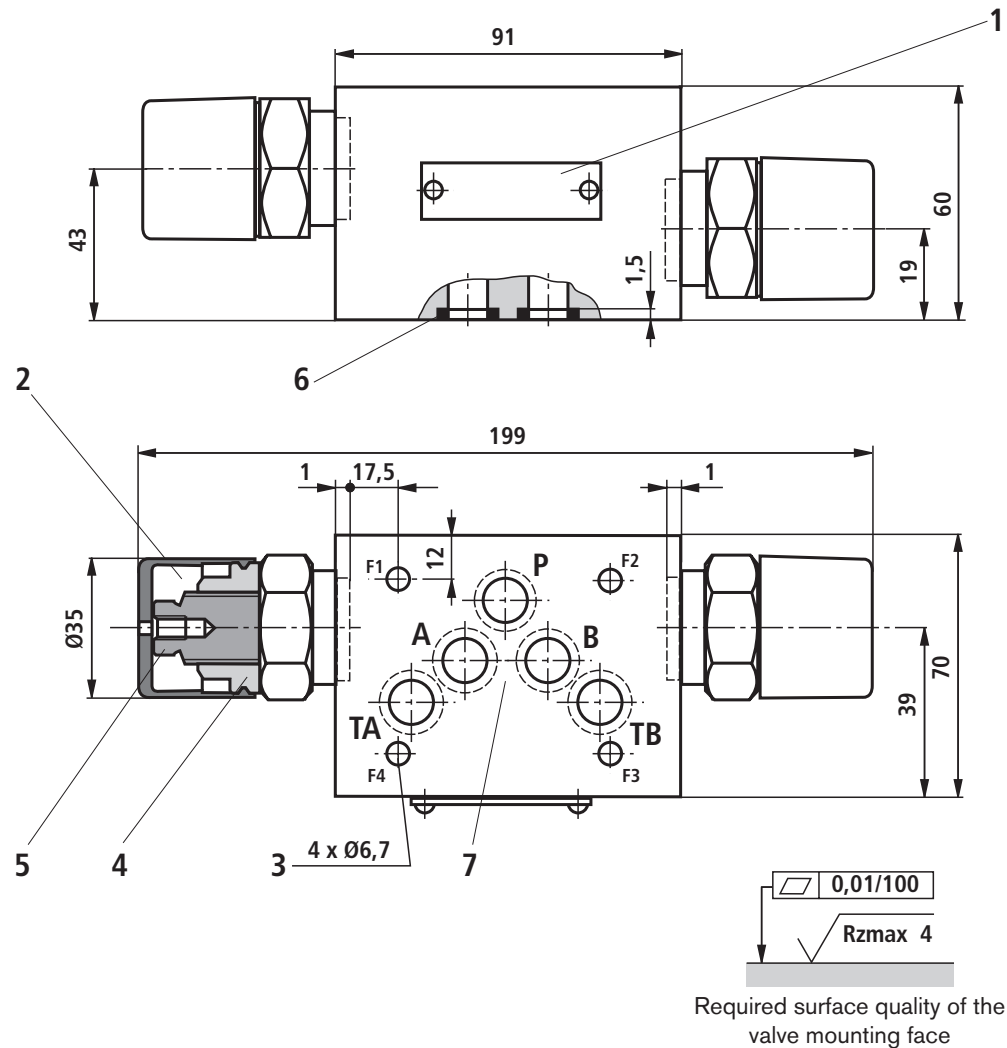
  
 Required surface quality of the valve mounting face

- 1 Nameplate
- 2 Adjustment element: Sleeve with hexagon and protective cap
- 3 Valve mounting bores
- 4 Locknut 24 A/F
- 5 Hexagon 10 A/F
- 6 Identical seal rings for ports A, B, P, TA, TB (plate side)
- 7 Porting pattern to ISO 4401-05-04-0-05

### Valve fixing screws (separate order)

- 4 hexagon socket head cap screws  
ISO 4762 - M6 - 10.9-fIZn-240h-L  
Friction coefficient  $\mu_{\text{total}} = 0.09$  to  $0.14$ ,  
tightening torque  $M_T = 12.5 \text{ Nm} \pm 10\%$ ,  
or
- 4 hexagon socket head cap screws ISO 4762 - M6 - 10.9  
bei Friction coefficient  $\mu_{\text{total}} = 0.12$  to  $0.17$ ,  
tightening torque  $M_T = 15.5 \text{ Nm} \pm 10\%$

## Unit dimensions: Type Z2DBK 10 VD (dimensions in mm)



- 1 Nameplate
- 2 Adjustment element: Sleeve with hexagon and protective cap
- 3 Valve mounting bores
- 4 Locknut 24 A/F
- 5 Hexagon 10 A/F
- 6 Identical seal rings for ports A, B, P, TA, TB (plate side)
- 7 Porting pattern to ISO 4401-05-04-0-05

### Valve fixing screws (separate order)

– 4 hexagon socket head cap screws  
**ISO 4762 - M6 - 10.9-fZn-240h-L**  
 Friction coefficient  $\mu_{\text{total}} = 0.09$  to  $0.14$ ,  
 tightening torque  $M_T = 12.5 \text{ Nm} \pm 10\%$ ,  
 or

– 4 hexagon socket head cap screws **ISO 4762 - M6 - 10.9**  
 Friction coefficient  $\mu_{\text{total}} = 0.12$  to  $0.17$ ,  
 tightening torque  $M_T = 15.5 \text{ Nm} \pm 10\%$

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